

Crystal Data: Tetragonal. *Point Group:* $\bar{4}2m$. Crystals rare, to 2 mm; commonly coarse-grained, fine-grained, massive, intimately intergrown with enargite. *Twinning:* Common on {112}, also polysynthetic in polished section.

Physical Properties: *Cleavage:* Good on {101}, distinct on {100}. Hardness = 3.5 VHN = n.d. D(meas.) = 4.38 D(calc.) = 4.53

Optical Properties: Opaque. *Color:* Deep pinkish brown, similar to bornite, although darker; in polished section, pale brownish pink. *Streak:* Black. *Luster:* Metallic, dull.

Pleochroism: Weak. *Anisotropism:* Strong, in greenish yellow and purplish.

R₁–R₂: (400) 27.2–28.7, (420) 25.6–27.6, (440) 24.1–25.6, (460) 23.6–24.7, (480) 23.4–24.5, (500) 23.7–25.2, (520) 24.1–26.4, (540) 24.3–27.1, (560) 24.9–27.7, (580) 25.6–28.5, (600) 26.5–29.1, (620) 27.3–29.6, (640) 28.1–29.9, (660) 28.6–30.1, (680) 28.7–30.0, (700) 28.7–30.0

Cell Data: *Space Group:* $I\bar{4}2m$. $a = 5.332(5)$ $c = 10.57(1)$ $Z = 2$

X-ray Powder Pattern: Mankayan, Philippines.

3.046 (10), 1.855 (9), 1.592 (7), 1.578 (6), 1.204 (6), 1.078 (6), 1.321 (5)

Chemistry:

	(1)	(2)	(3)
Cu	48.32	48.4	48.42
As	17.35	17.4	19.02
Sb	1.48	1.0	
S	32.85	32.2	32.56
Total	[100.00]	99.0	100.00

(1) Mankayan, Philippines; recalculated to 100.00% after deduction of 0.97% insol. and 0.56% pyrite. (2) Huaron, Peru; by electron microprobe. (3) Cu₃AsS₄.

Polymorphism & Series: Dimorphous with enargite; forms a series with famatinite.

Mineral Group: Stannite group.

Occurrence: In hydrothermal Cu–As–Sb-rich vein and disseminated deposits, formed at low to medium temperatures.

Association: Enargite, tetrahedrite–tennantite, colusite, stannoidite, pyrite, chalcopyrite, covellite, sphalerite, bismuthinite, silver sulfosalts, silver, gold, marcasite, alunite, barite, quartz.

Distribution: From the Lepanto mine, Mankayan, Luzon, Philippines [TL], as an ore mineral. In the Chinkuashi mine, Keelung, Taiwan. In Japan, at the Teine, Morino, and Date mines, Hokkaido; the Kasuga and Akeshi mines, Kagoshima Prefecture; and other localities. From the Sierra Famatina, La Rioja Province, Argentina. In the Julcani district, at Cerro de Pasco, and at Huaron, Peru. In the USA, in Nevada, at Goldfield, Esmeralda Co., from the Golden Chariot mine, Jamestown district, Nye Co., and in the Burrus vein, Pyramid district, Washoe Co.; from Butte, Silver Bow Co., Montana; and at Summitville, Rio Grande Co., Colorado. At the Chelopech deposit, Sofia, Bulgaria. From Calabona, Sardinia, Italy. At the Kadzaharan deposit, Armenia. From Pîriul lui Avram, Romania. In the Lahóca Hill mine, Recsk, Mátra Mountains, Hungary. Numerous additional localities are now known.

Name: For Luzon Island in the Philippines.

References: (1) Gaines, R.V. (1957) Luzonite, famatinite and some related minerals. *Amer. Mineral.*, 42, 766–779. (2) Marumo, F. and W. Nowacki (1967) A refinement of the crystal structure of luzonite, Cu₃AsS₄. *Zeits. Krist.*, 124, 1–8. (3) Pósfai, M. and M. Sundberg (1998) Stacking disorder and polytypism in enargite and luzonite. *Amer. Mineral.*, 83, 365–372. (4) Pósfai, M. and P.R. Busek (1998) Relationships between microstructure and composition in enargite and luzonite. *Amer. Mineral.*, 83, 373–382. (5) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 334.

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